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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/696,232

10/26/2000

Mitsuru Ishikawa

07553.0017

5127

22852

7590

03/31/2008

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
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EXAMINER

OLSEN, ALLAN W

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

03/31/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/696,232	<b>Applicant(s)</b> ISHIKAWA ET AL.	
	<b>Examiner</b> Allan Olsen	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,658,425 issued to Halman et al. (hereinafter, Halman) in view of US Patent 6,284,149 issued to Li et al. (hereinafter, Li).**

Halman teaches a method of etching a polysiloxane (TEOS 5, 8) formed on a protective layer (TiSi<sub>x</sub>, 4, 7). Halman teaches using plasma comprising CF<sub>4</sub>, Ar and N<sub>2</sub> to etch the Si containing organic film (column 4, lines 38-42). Halman teaches etching the Si-containing organic film until the protective film is exposed. Halman teaches the etching process ceases once the protective film is exposed (column 3, lines 28-30). Halman teaches a resist layer (9) is used as a mask on Si-containing organic film (column 4, line 23).

Halman does not teach using between 1 and 4 times as much N<sub>2</sub> as CF<sub>4</sub>.

Li teaches adding a substantial amount of N<sub>2</sub> to a fluorocarbon based plasma etching of Si-containing organic layer (column 10, line 21).

It would have been obvious to one skilled in the art to use an amount of N<sub>2</sub> that was between 1 and 4 times as much as the amount of CF<sub>4</sub> because, although Halman provides examples with a 5:8 N<sub>2</sub> to CF<sub>4</sub> ratio (column 4, lines 41-42), Halman teaches

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that an unlimited amount of N<sub>2</sub> may be used (column 4, lines 50-54) and Li teaches that adding N<sub>2</sub> to a fluorocarbon based plasma etching of a Si-containing organic layer allows one to control the etching profile, for example, to prevent bowing (column 10, lines 21-65).

Halman does not teach the dielectric constant of the TEOS layer but TEOS is known to have a dielectric constant of about 3.0 (US 5,776,828)

Halman and Li do not teach an etching selectivity ratio of 2 with respect to the resist; however, as Halman and Li make obvious the claimed process it is expected the skilled artisan would achieve the same results.

### ***Response to Arguments***

Applicant's arguments filed January 4, 2008 have been fully considered. Applicant argued that they have perfected their claim to a foreign priority document and therefore the previously applied references no longer constitute prior art. This was persuasive and all prior rejections have been withdrawn. However, applicant's effective filing date of October 26, 1999 does not disqualify Halman or Li as applied above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Allan Olsen/  
Primary Examiner, Art Unit 1792